

Three Types of Rocks

Strand	Rocks
Topic	Classifying rocks
Primary SOL	ES.5 The student will investigate and understand the rock cycle as it relates to the origin and transformation of rock types and how to identify common rock types, based on mineral composition and textures. Key concepts include <ul style="list-style-type: none">a) igneous rocks;b) sedimentary rocks;c) metamorphic rocks.

Background Information

Rocks can be classified as sedimentary, metamorphic or igneous. Each of these rock types form in its own unique way. Rocks are forming every second of every day and helping humans with their daily living in many ways. It is important to know that the characteristics that form each rock type have a lot to do with how the final rock will be used or how long it lasts on its own in nature. It is very important that students realize that rocks are made of minerals. It is also important that students become familiar with the three rock types and various rock names. The economic value of many rocks should be stressed as well. Students will construct a rock chart or use the one provided. They will use observations of rock samples and information from their textbook to determine the characteristics of each rock type.

Materials

- Set or “kit” of rock samples for each group:
 - Granite
 - Basalt
 - Pumice
 - Obsidian
 - Sandstone
 - Conglomerate
 - Shale
 - Fossil limestone
 - Rock salt
 - Chalk
 - Gneiss
 - Slate
 - Schist
 - Quartzite
 - Marble
- Rock Chart (attached)
- Samples of crushed igneous rock, metamorphic rock, sedimentary rock

Vocabulary

composition, igneous rock, metamorphic rock, sedimentary rock, texture

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Introduction

1. Divide the students into groups within the classroom. Give each group samples of crushed igneous rock, metamorphic rock, and sedimentary rock to make observations.
2. Have the students make a chart that has the students explain the main characteristics of each rock. If possible have the students tell which sample represents each of the three rock

types. Be sure to have them write a statement explaining why they think each sample represents each type of rock.

Procedure

1. Review the major rock-forming minerals and their characteristics. Also, review the differences between minerals and rocks. It may be helpful for the students to start with the definition of each and have them
2. write down examples of each. Have them write down why a mineral is not a rock and vice versa. (Can a mineral be a rock? It is in the classification that makes the differentiation.)
3. Review the rock cycle—all of the processes that act on rock material to break it down and the processes that take place to form rocks.
4. Place students into groups of four to six, and give each group a rock-sample kit. Have each group create a classification system for their rocks that categorizes the rocks according to observable characteristics. Instruct groups to be prepared to discuss and defend their classification systems.
5. After groups have defended their classification systems, instruct all groups to classify the rock samples according to the three major rock types. When they are finished, discuss with the class the origin and classification schemes of each type of rock. Have students record this information in the attached Rock Chart.

Assessment

- **Questions**
 - Describe the characteristics or properties that distinguish each rock type.
- **Journal/Writing Prompts**
 - Referring back to the prelesson activity, have the students identify other items that could be used in place of the chocolate bar, granola bar and the peppermint candy. Be sure to have them explain their reasoning for choosing the alternate item. Before the activity is complete make sure that all the students have the correct relationships in order.

Extensions and Connections (for all students)

- As a preview to a lesson on each type of rock, have students refer to their completed Rock Charts in a focusing activity. Then, have them reference their Rock Charts again after each of the three rock lessons (“Igneous Rocks,” “Sedimentary Rocks,” and “Metamorphic Rocks”) and make additions and other changes as needed.
- Have the students explain how and where each rock type forms. Are there exact places the students can identify that rock types are formed? (i.e., sedimentary rocks are formed along the fall line of VA due to the elevation change causing mechanical weathering of the rock)

Strategies for Differentiation

- **Rock Lab:** Set up stations throughout the classroom with various rock samples, and have students circulate from one station to another with their Rock Chart handouts. Have them observe, identify, and record on their charts the rock type for each rock sample.
- Have students illustrate, label, and write an explanation of the rock cycle.

- Have students play a game of “Name the Rock.” Form four student teams. Read aloud a rock property, and ask team A to name the rock described by the property. If team A answers correctly, it gets one point. If it does not answer correctly, ask team B, and then team C, etc. On the next round, start with team B.

Rock Chart

Name: _____ Date: _____

Pre-Lesson Activity-

In groups, classify the three items that your teacher has given you. Be sure to tell how each is different from the others and how they are the same. These might be actual items or images of the real thing!

	Origin	Classification	Examples/Uses
Igneous Rocks			
Sedimentary Rocks			
Metamorphic Rocks			